

APS Ten Year Transmission Plan 2014-2023

Arizona Corporation Commission
2014 Biennial Transmission Assessment

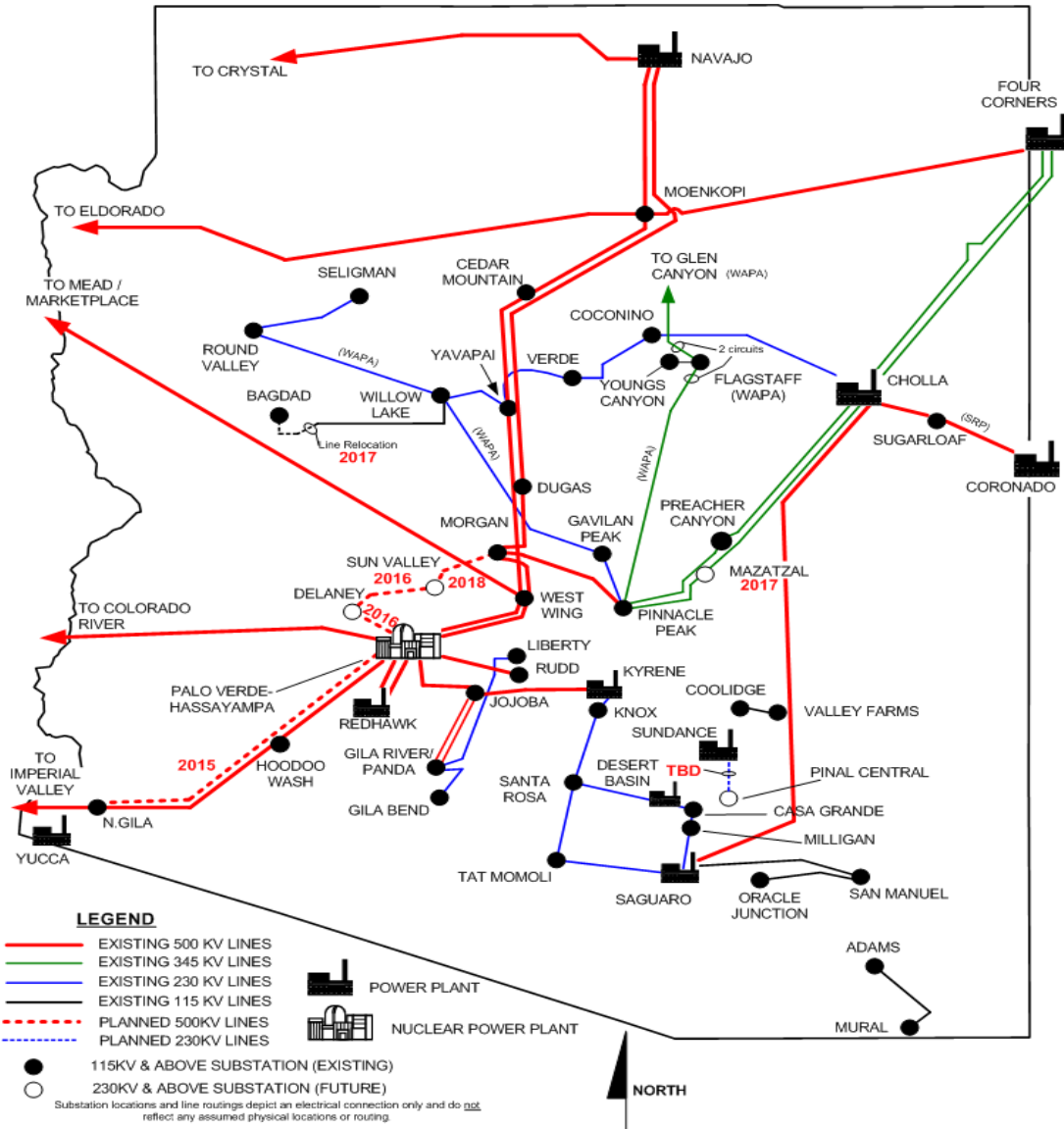
Jerry Dolyniuk
8th BTA Workshop #1
May 15, 2014



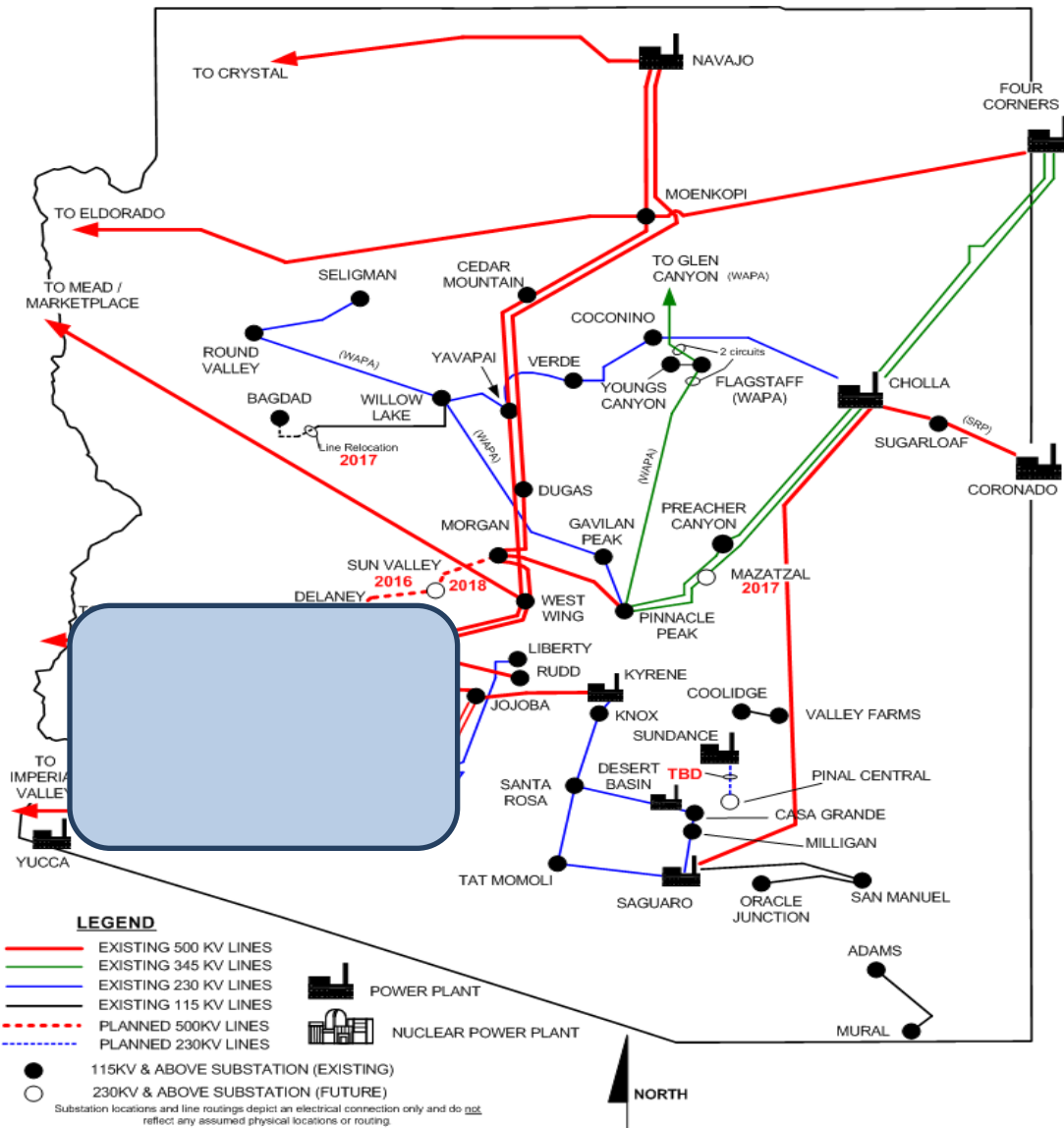
Overview

- Description of APS's filed 2014-2023 Transmission Plan
- Project changes from previous BTA
- RMR update
- Responses to preliminary questions
 - Subregional and stakeholder involvement
 - Transmission system adequacy
 - Potential coal plant retirement
 - September 8, 2011 event
 - Increased penetration of variable energy resources

APS EHV & OUTER DIVISION 115/230 KV
TRANSMISSION PLANS 2014 – 2023



APS EHV & OUTER DIVISION 115/230 KV **TRANSMISSION PLANS 2014 - 2023**



Hassayampa-North Gila 500kV update

- Work is currently on schedule to be energized 6/1/15
 - Foundations scheduled to be complete in September
 - Structure assembly is in progress
 - Wire stringing began in April
 - Construction at North Gila substation will resume after summer season
 - Construction work at Hassayampa Switchyard started in April
 - Major equipment due to arrive fall 2014

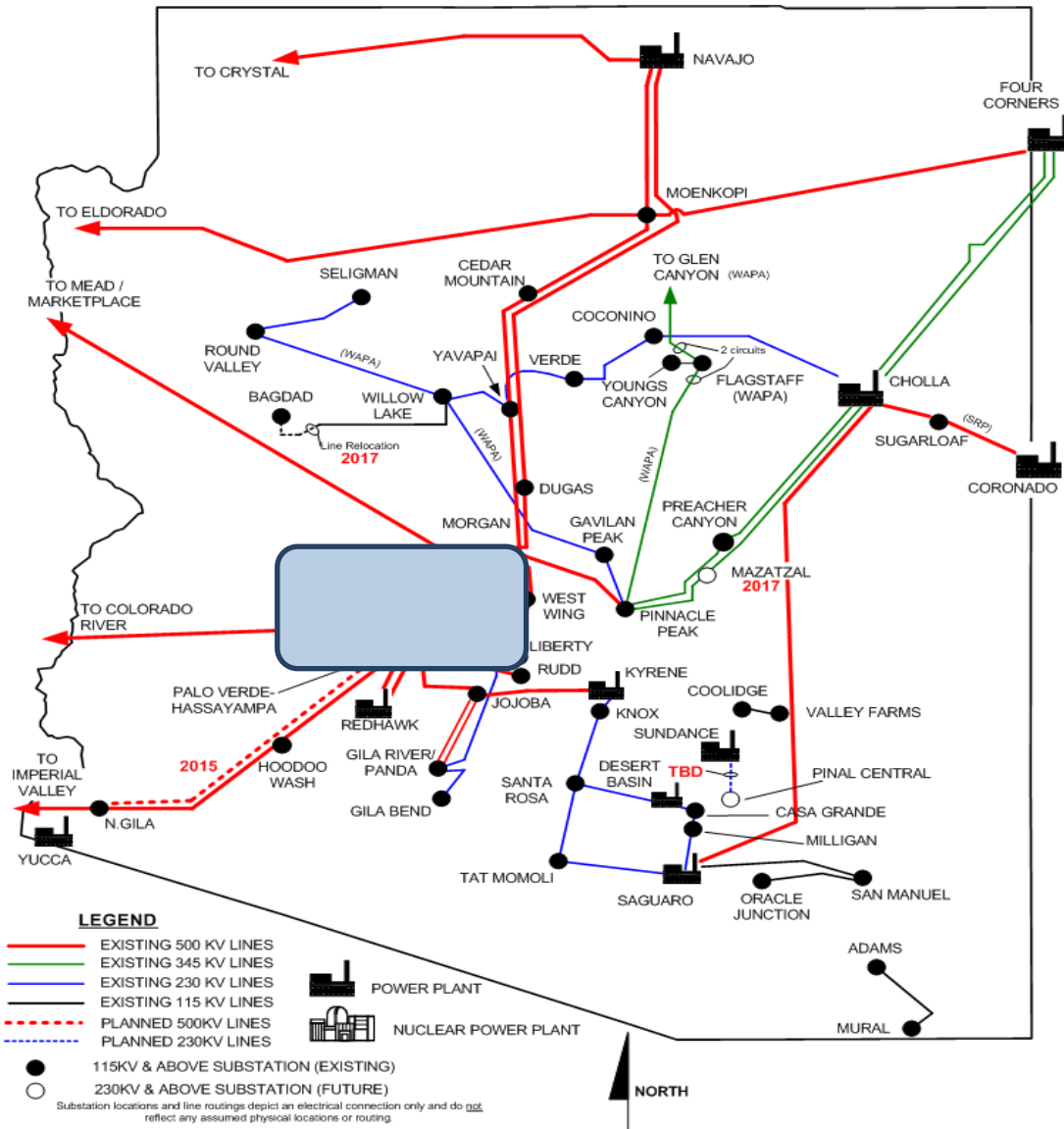
Progress - North Gila Substation



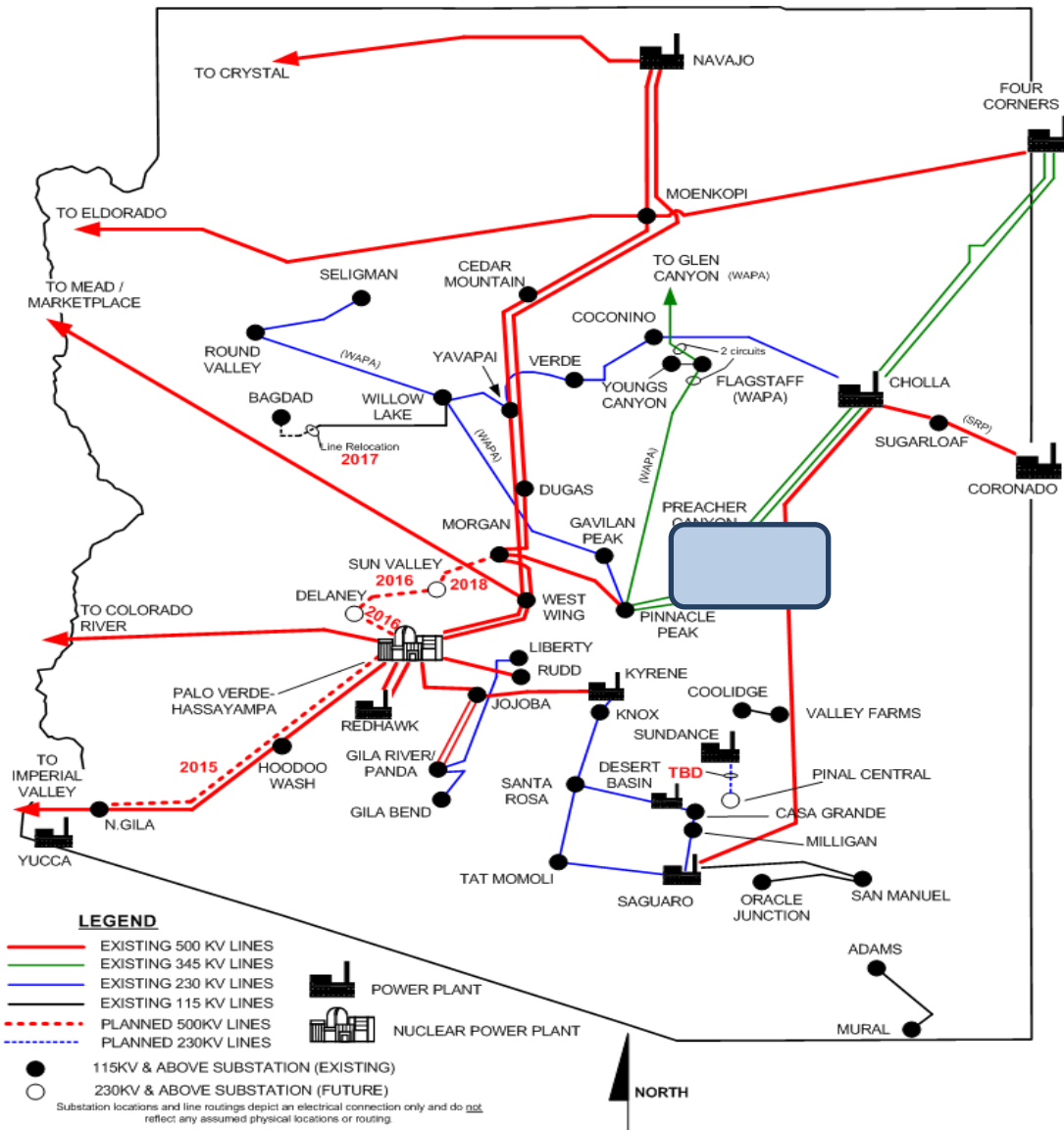
Progress - Line



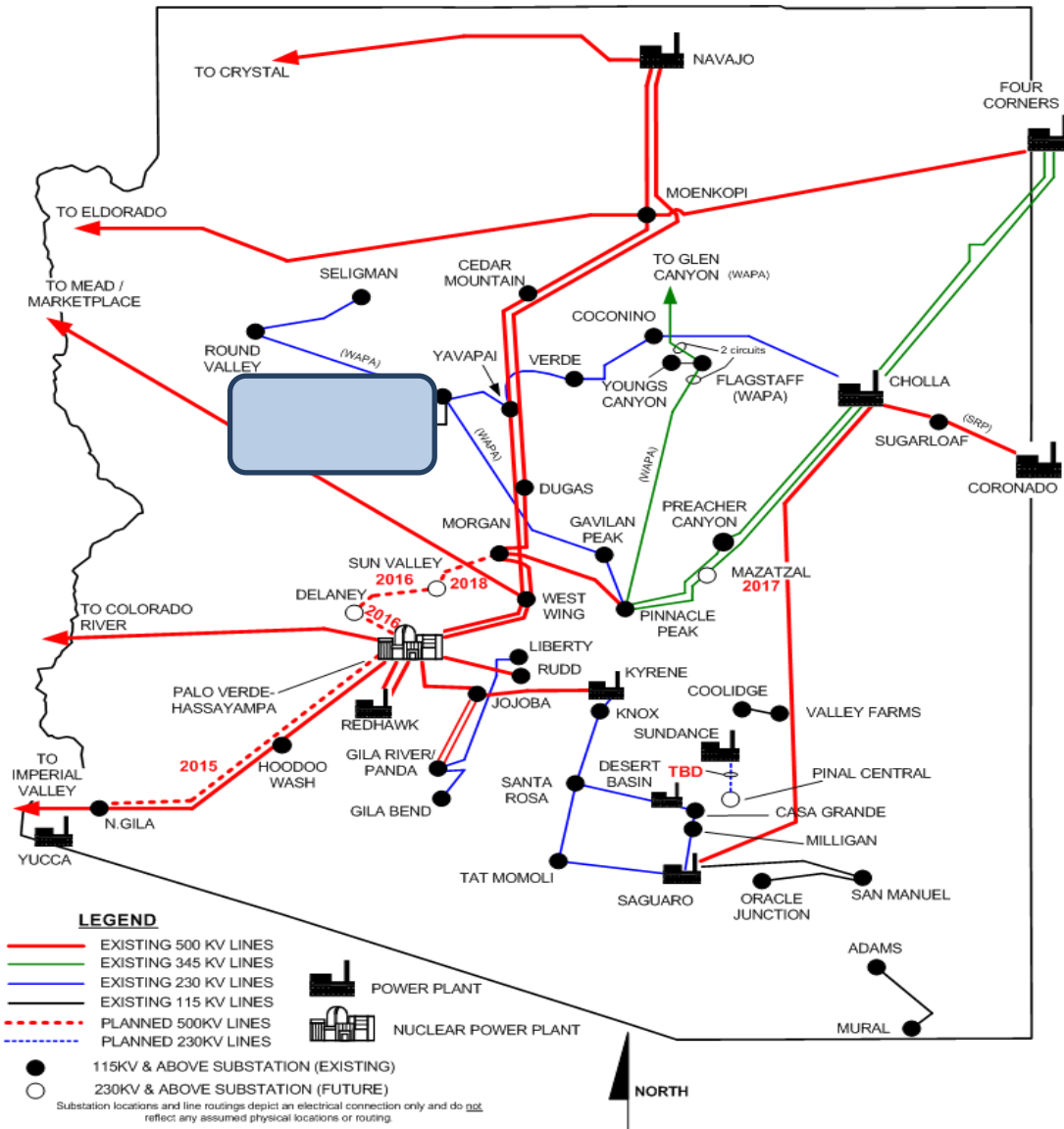
APS EHV & OUTER DIVISION 115/230 KV **TRANSMISSION PLANS 2014 - 2023**



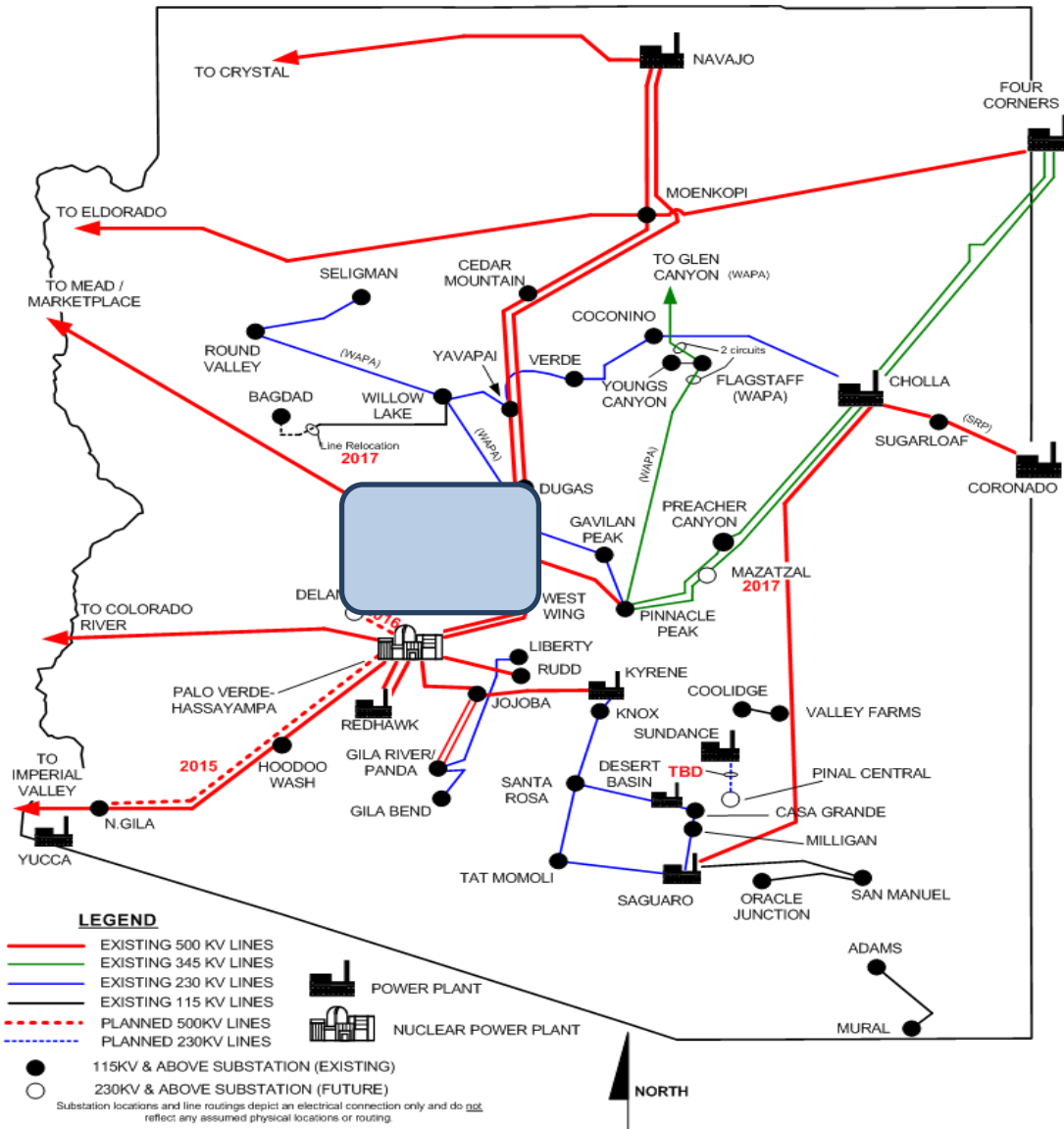
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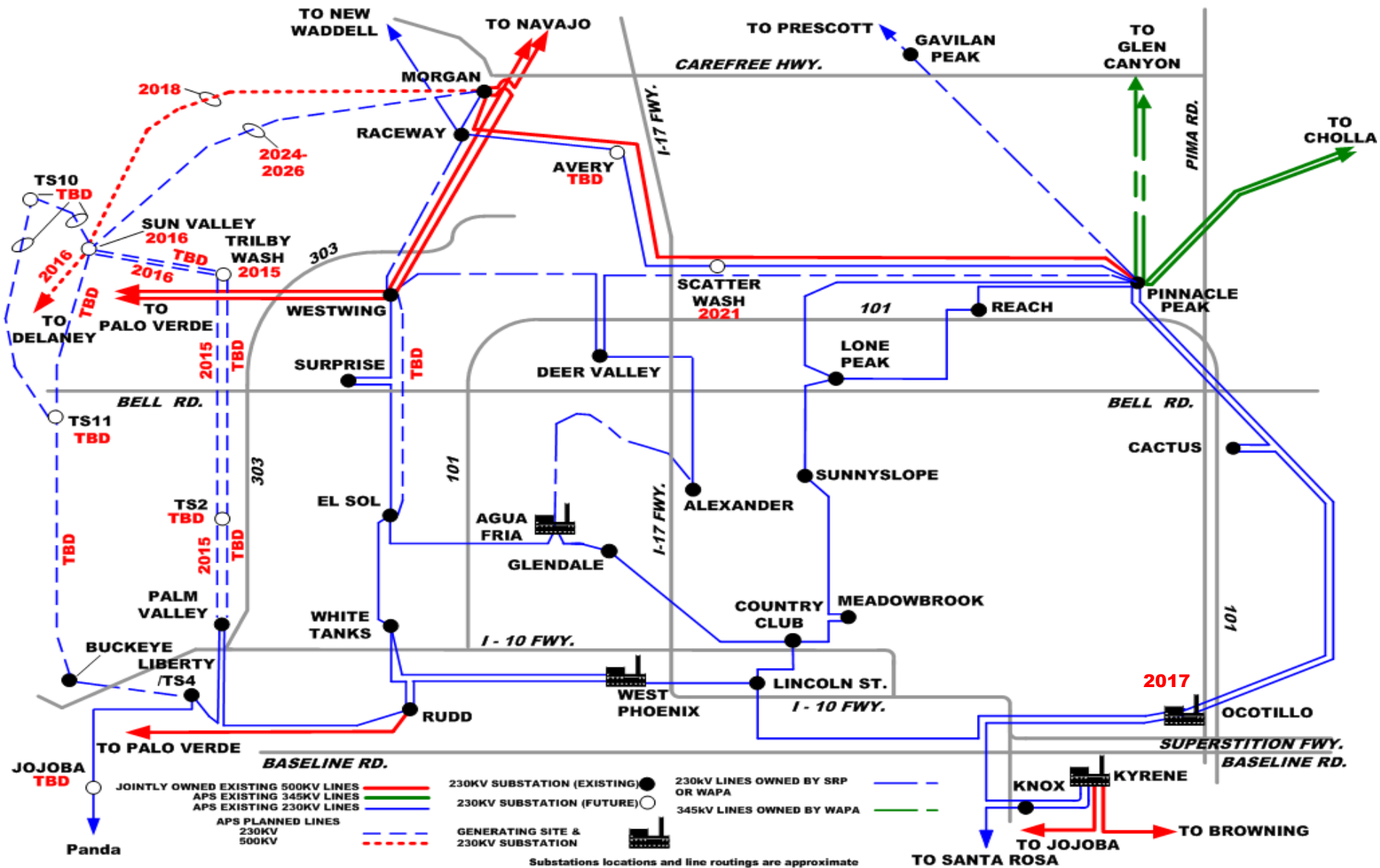
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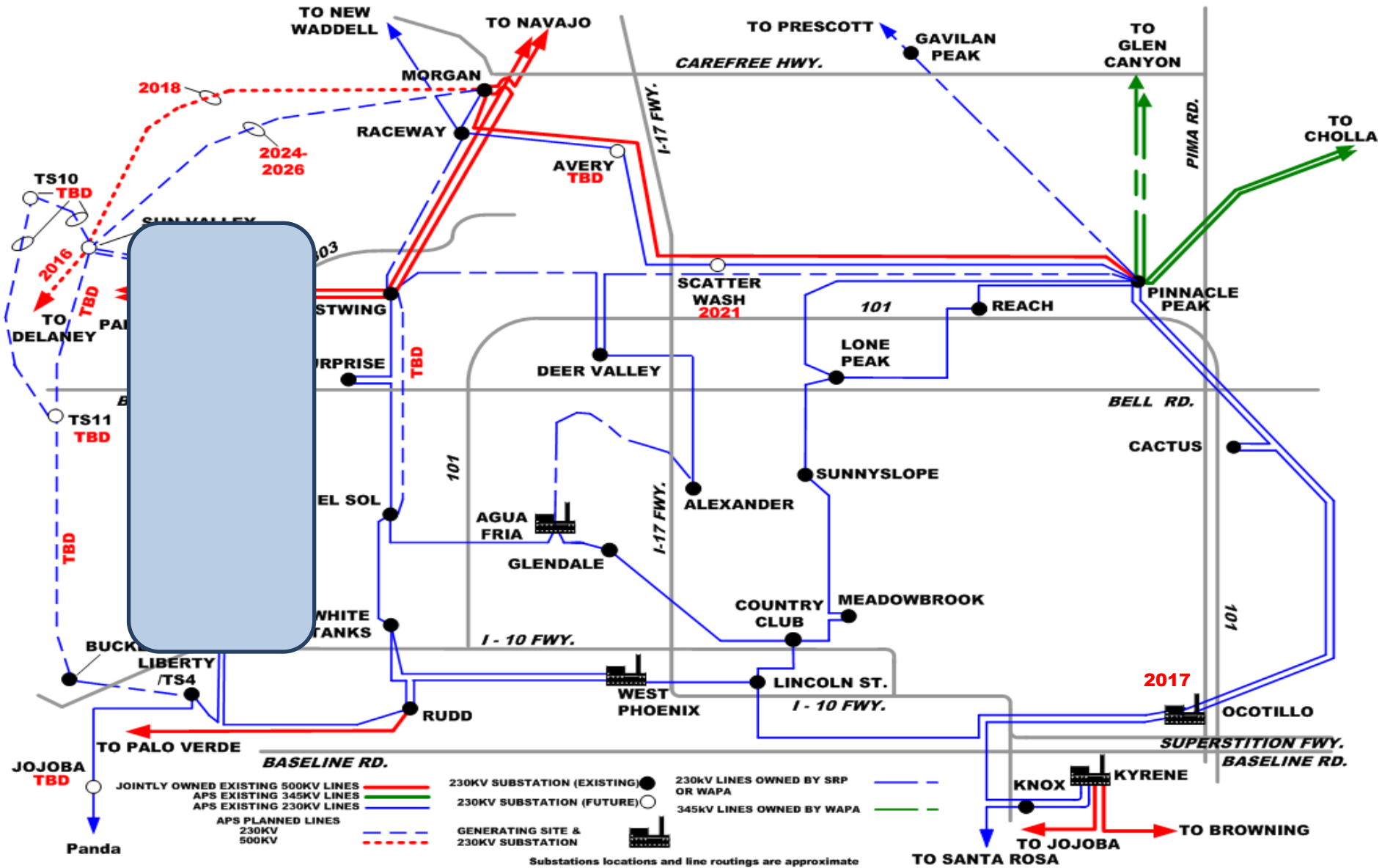
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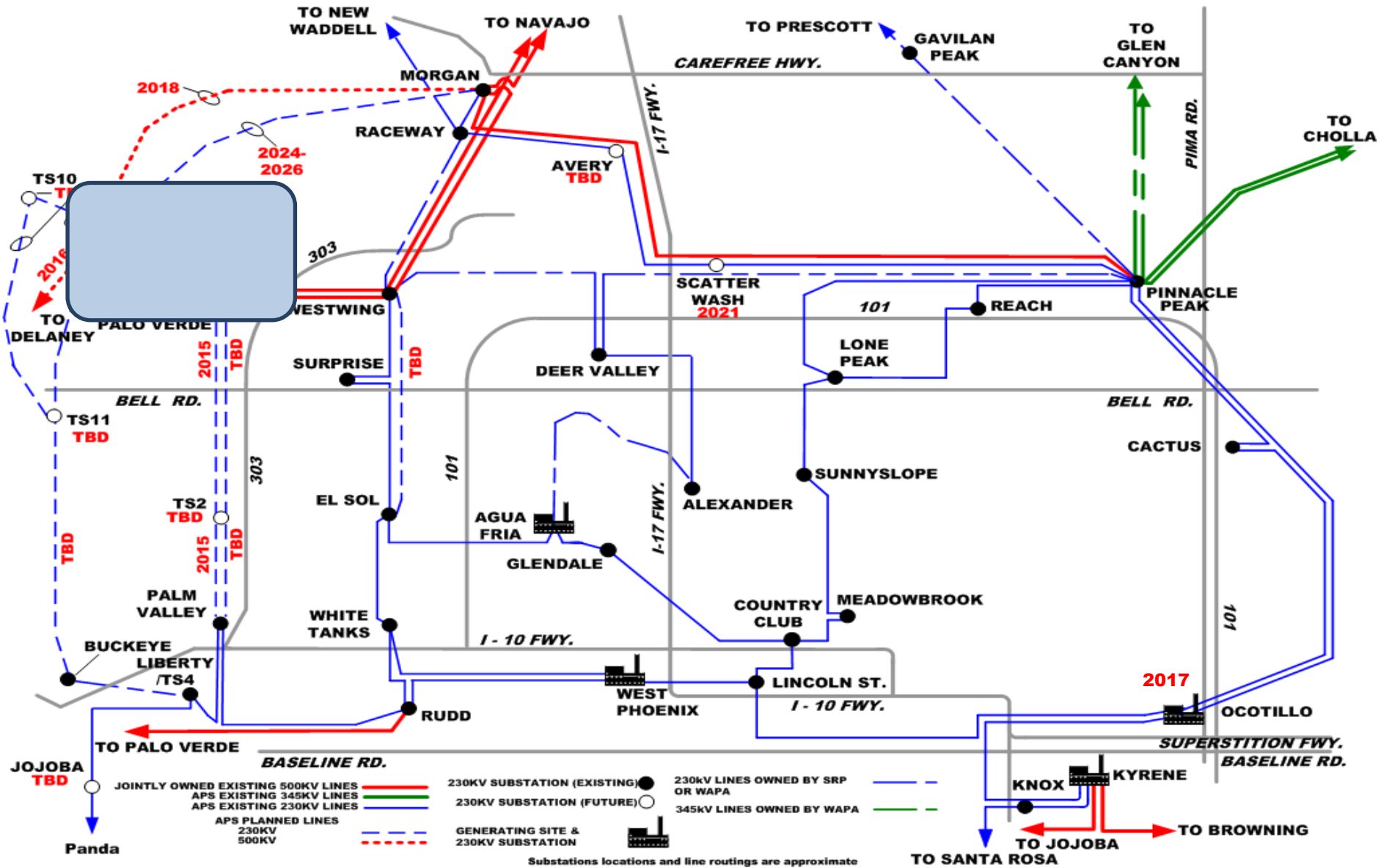
PHOENIX METROPOLITAN AREA TRANSMISSION PLANS 2014-2023



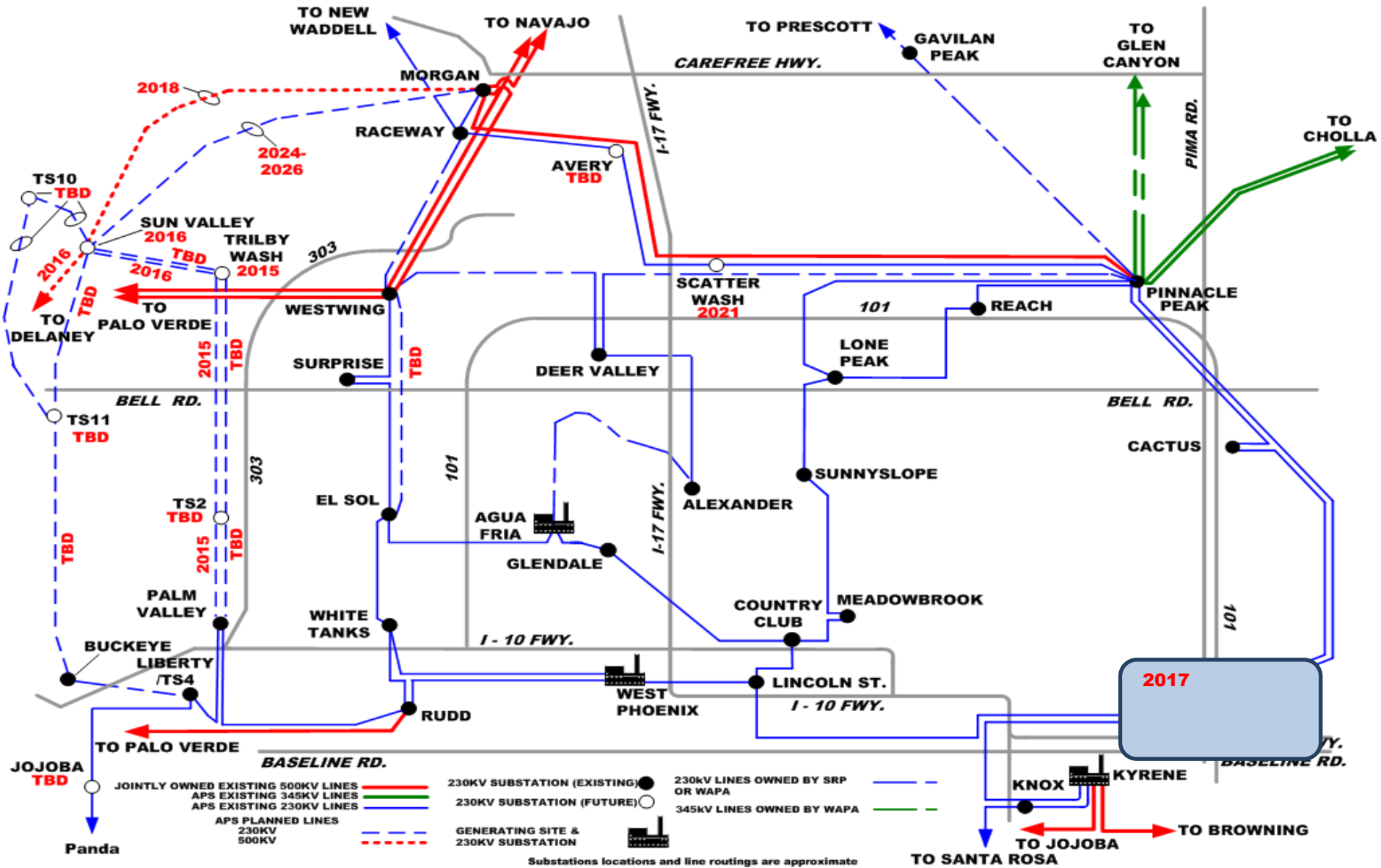
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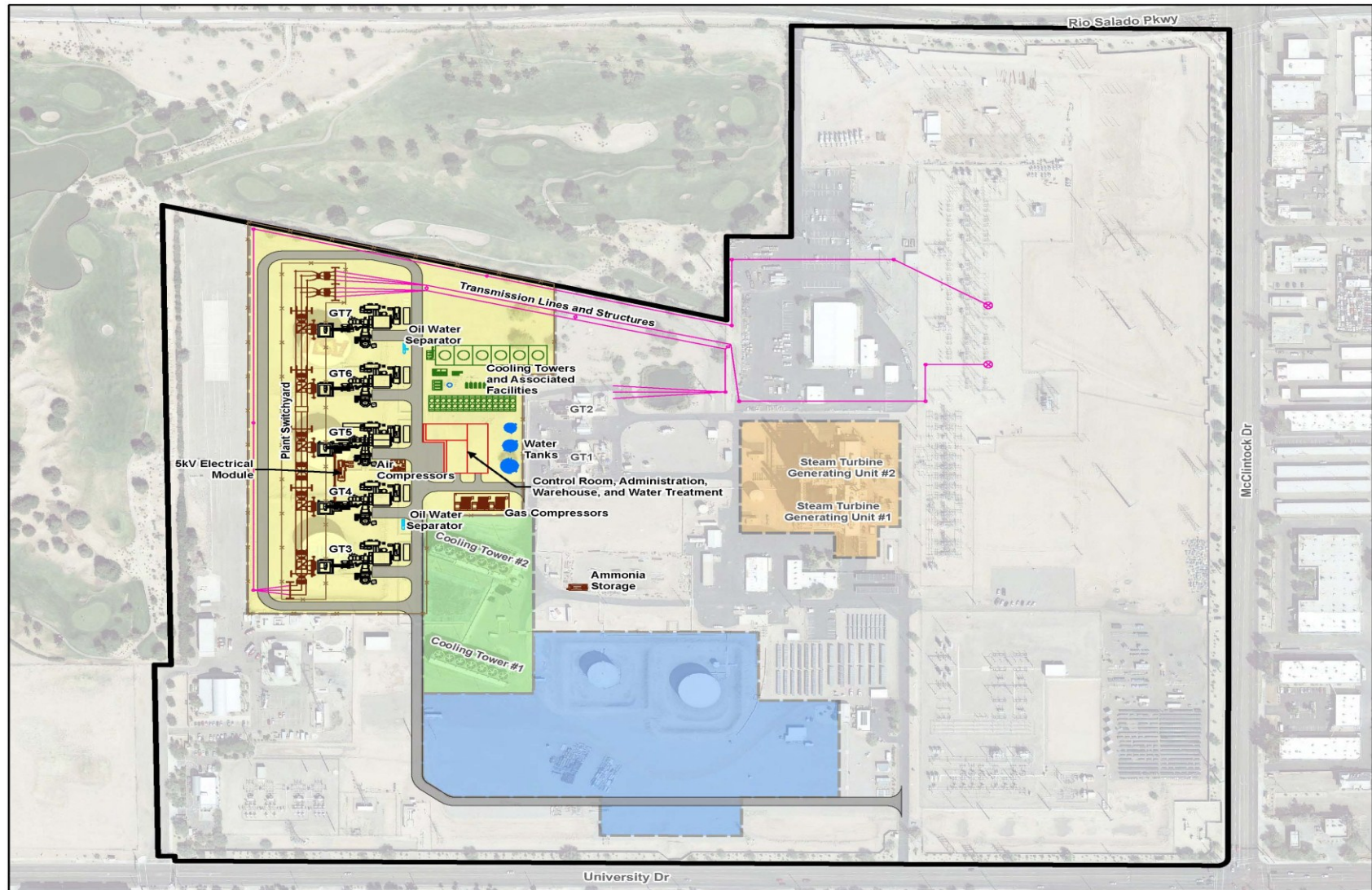
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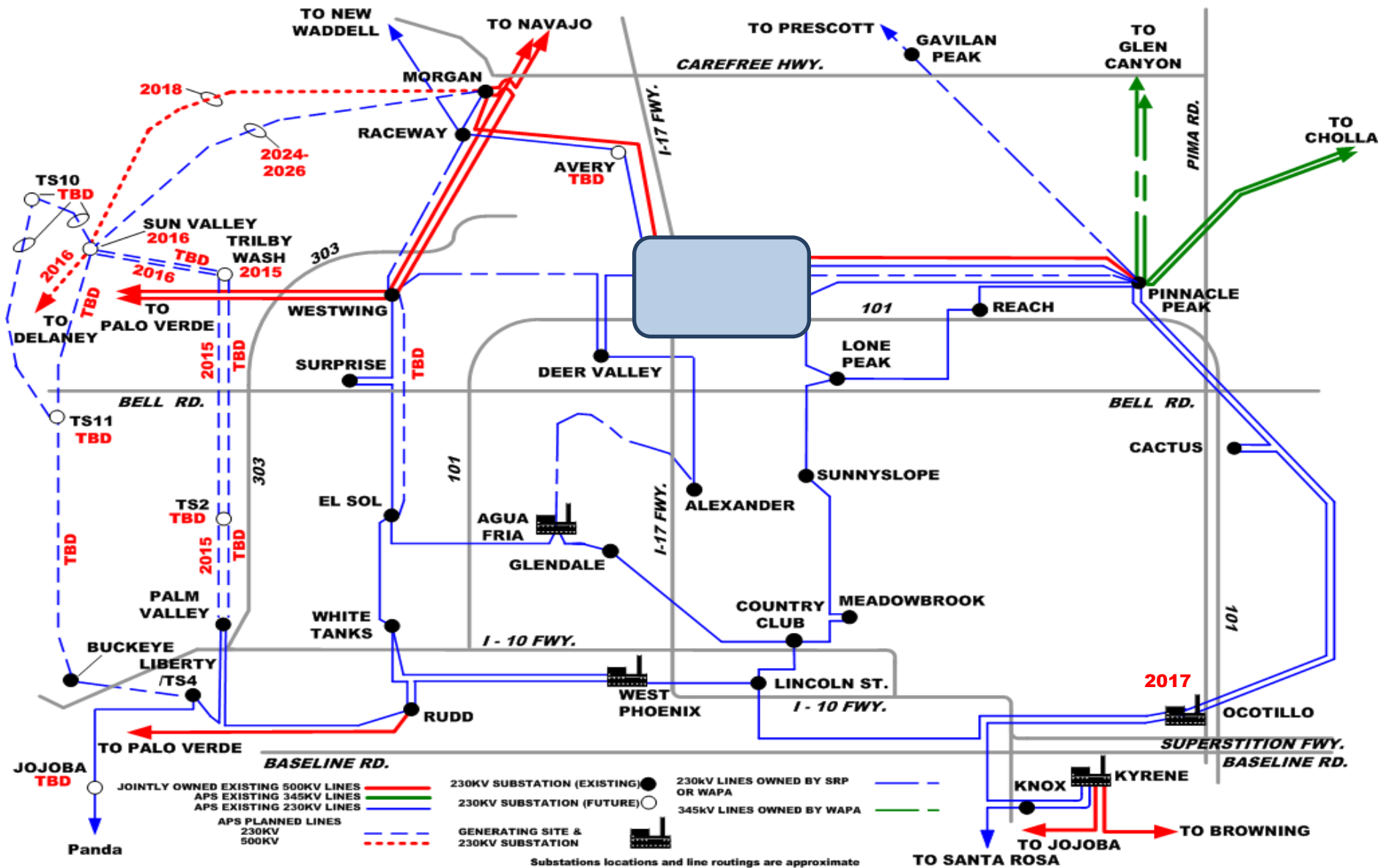
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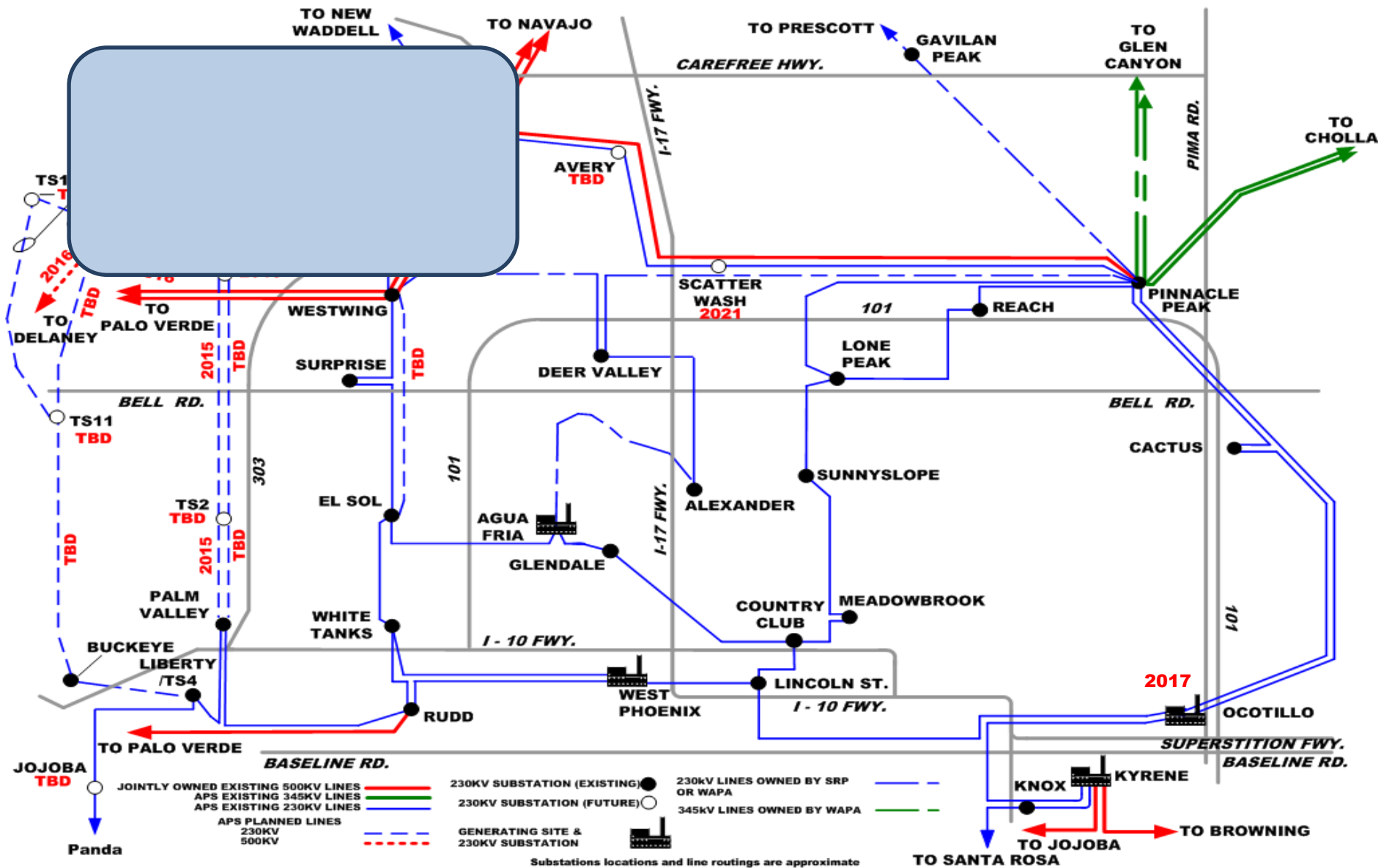
Ocotillo Modernization Project Site Plan



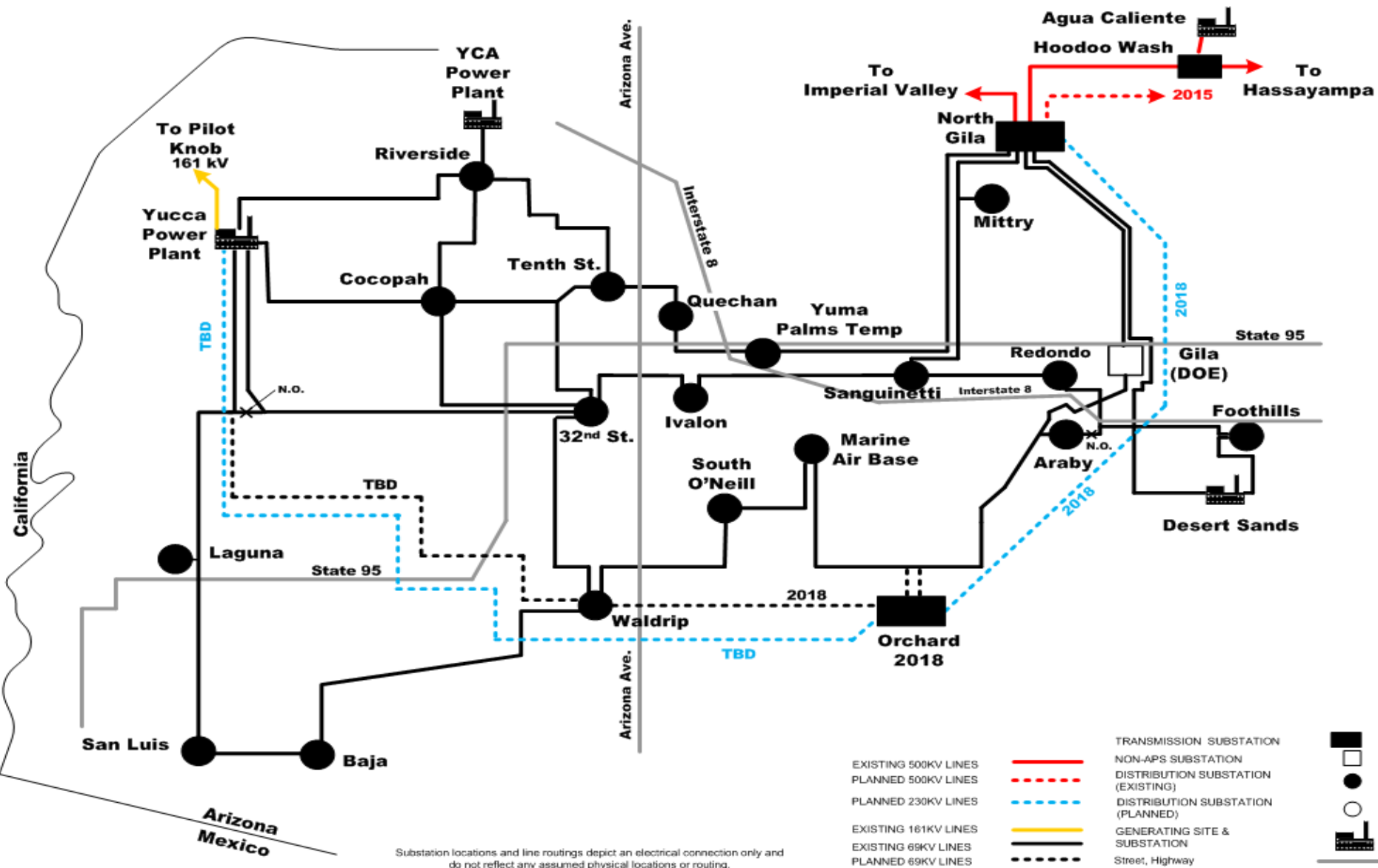
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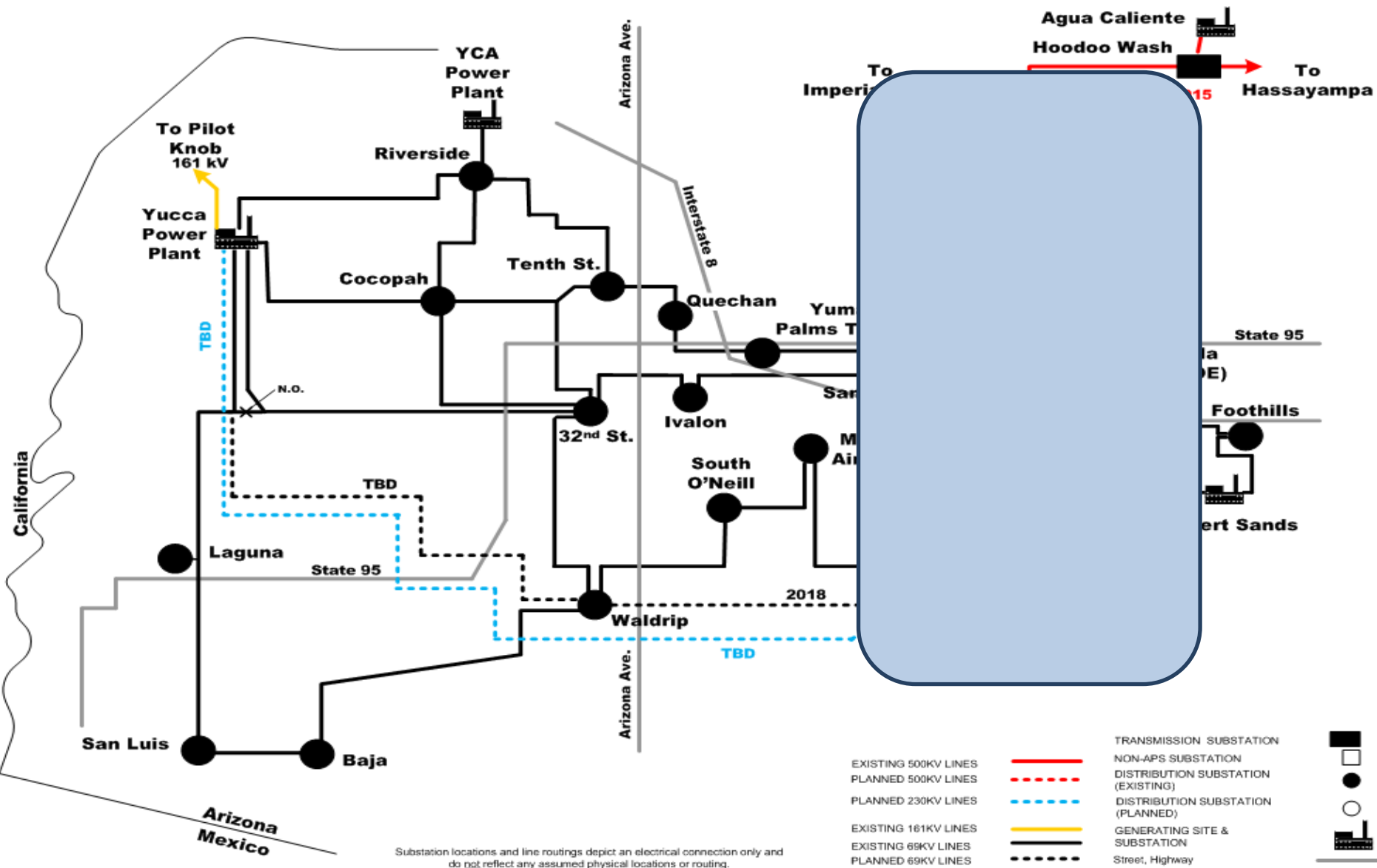
PHOENIX METROPOLITAN AREA TRANSMISSION PLANS 2014-2023



Yuma Area Transmission Plans 2014-2023



Yuma Area Transmission Plans 2014-2023



Changes from 2012 to 2014

Project	Change in Status	
	7 th BTA	8 th BTA
Youngs Canyon 345/69kV substation	In-service	12/9/13
Delaney-Palo Verde 500kV line	2013	2016
Delaney-Sun Valley 500kV line	2015	2016
Mazatzal 345/69kV substation	2015	2017
Bagdad 115kV line relocation	2014	2017
North Gila-Orchard (TS8) 230kV Line	2015	2018

Changes from 2012 to 2014

Project	Change in Status	
	7 th BTA	8 th BTA
Sun Valley-Trilby Wash 230kV line	2015	2016
Sun Valley-Morgan 500kV line	2016	2018
Pinal Central-Sundance 230kV line	2014	TBD
Desert Basin-Pinal Central 230kV line	2014	No longer participating
TS12 230/69kV substation	2021	Replaced
OMP 230kV Generator Interconnections	N/A	2017

RMR Studies

- 7th BTA resulted in an ACC order to suspend RMR studies
 - Four factors established for restarting RMR studies
 - *Increase of load forecast by more than 2.5%*
 - *Planned retirement (or expected long-term outage during summer) of transmission/substation*
 - *Planned retirement (or expected long-term outage during summer) of a generating unit in an RMR area*
 - *Significant customer outage in an RMR load pocket during summer months*
- 8th BTA - APS analysis showed no triggering events have occurred that would require restarting a RMR study for Phoenix or Yuma load pockets

Subregional & Stakeholders

- APS's projects are included in Southwest Area Transmission (SWAT), WestConnect, and Transmission Expansion Planning Policy Committee (TEPPC) plans
- APS projects are modeled in all WECC cases
- Regional transmission projects are reviewed and studied within regional/subregional forums
- APS/SRP Joint Stakeholder meetings (FERC Order 890)
 - 6/20/2013 and 12/19/2013

System Adequacy

- **Coal Plant Retirement Analysis**
 - APS's IRP considers a number of different scenarios
 - Studies performed included the effects of retiring Four Corners Units 1-3
 - SWAT recently established the Coal Reduction Assessment Task Force
 - Evaluate the impact of coal retirements long-term and on a wider regional basis

System Adequacy

- **9/8/2011 Take-Aways**
 - Increased situational awareness, cooperation and coordination
 - Developing a wider view
 - Neighboring systems are monitored for effects of outages to the APS system
 - Determination of effects on APS system from outages on neighboring systems

System Adequacy

- **Variable Energy Resources**

- Natural gas generation will become the energy source of choice
 - Operational flexibility
- Cleaner energy mix
 - Customer resources such as roof-top solar and energy efficiency projected to triple
- Advanced technology will change the electricity grid
 - Communication and automation
 - Integration of renewable energy

Questions?